REMARKS

Claims 1-5, 8-15, 17, 20-23, 26, 27, 31 and 33 have been amended, claim 19 was canceled, and therefore and claims 1-18 and 20-34 remain pending in this application. In view of the above amendments and the following remarks, it is respectfully submitted that these claims are allowable.

The drawings stand objected to for failure to show the optical element of claim 20. It is respectfully submitted that this ground for rejection has been obviated in view of the above amendments to the claims deleting reference to the "optical functional element". This amendment as been made without prejudice to Applicant's right to pursue any such canceled subject matter in a related application.

With respect to the drawing objections to FIGS. 2 and 3, the undersigned is endeavoring to address the objections and will do so prior to or upon receiving an indication of allowable subject matter.

Claims 1-18 and 20-26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Gu et al. (WO-00/79319 A1); claims 27-28, 30-31 and 33-34 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Miura et al. (EP-01116965 A1); and claims 29 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gu et al. in view of Aitken et al. (U.S. No. 6,573,026 B1). The Examiner's grounds for rejection are hereinafter traversed, and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

Gu et al. fail to teach or suggest an optical waveguide including a defined portion of the boundary region having at least one of microdamage and a surface defined by material removed from the defined areas of the boundary region by subjecting said defined portion to laser radiation in the form of at least an ultra-short single pulse or a sequence of pulses with a defined energy input, as recited in amended independent claim 20. To the contrary Gu et al. teach forming the waveguide from photosensitive materials and "writing" or "imprinting" the modifications thereon (i.e., transmitting UV light onto a photosensitive fiber). There is no teaching or suggestion in Gu et al. of a waveguide including a modification defined by microdamage or a surface formed by removing material from the defined portion, much less such a defined portion including the additional limitations as recited in the amended independent claim.

Miura et al. likewise fail to teach or suggest a device for microstructuring an optical waveguide of the type recited in amended independent claim 20, much less such a device wherein the laser and focusing device are configured (i) to transmit the laser radiation in the form of at least an ultra-short single pulse or a sequence of pulses with a defined energy input into the defined portion of the boundary region, (ii) that microdamages and/or removes the material from the defined portion of the boundary region with said laser radiation, and (iii) modifies the at least one optical property of the optical waveguide at said defined portion of the boundary region, as recited in amended independent claim 26. To the contrary, Miura et al. relate to the making of a grating device using a very mixed material exhibiting a low transmission through the visible region (see, e.g., ¶ 0046, Fig 6A) and irradiating the glass to improve transmission through the 'waveguide'. In contrast, the presently amended claims recite a defined portion of the boundary region defining microdamage or a surface formed by the removal of materials, which are "loss sites" that can cause light traveling forward to be diverted out the sides of the fiber section treated. Accordingly, the present invention has a substantially opposite effect of that taught by Miura et al.[1]

It is respectfully submitted that Aitkken et al. does not materially add to the teachings of Gu et al. with respect to the presently claimed invention.

With respect to amended independent claim 1, the claim recites, inter alia, "microdamaging and removing the material from the defined portion of the boundary region with said laser radiation", and therefore for the reasons summarized above, structurally defines a product that is neither taught nor suggested by the prior art for at least these reasons.

Accordingly, it is respectfully submitted that claims 1-34 are allowable. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

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[1] Note in paragraph 00050 of Miura et al. that the material is only 72% silica, and the remainder is a mix of oxides including metal copper (Cu_2O), tin (SnO), sodium carbonate and boric oxide. In paragraph 0051, Miura et al. explain that this is a very soft glass which is formed by melting at about 650 C, whereas the waveguides of the present invention are particularly suited for manufacture from 'pure silica' that does not soften unless heated higher than about 1500 C, and does not melt unless heated to about 2100 C. High power laser effects in such low silica glass as in Miura et al. is significantly different than the effects in primarily silica glass because of the temperature characteristics of each.

No fee in addition to that submitted in connection with the accompanying petition for extension of time is believed to be due in connection with this paper. However, in the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this paper, Applicants' attorneys hereby authorize that such fee(s) be charged to Deposit Account No. 50-3569.

Respectfully submitted,

Date: October 17, 2008

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